

CLAIMS

What is claimed is:

1. (Currently amended) A nucleic acid ~~sequence~~ which comprises:

$P_x-S_x[[-B_n]]-(ZR)-$ nucleic acid encoding a transport peptide $-(Z_1Z_2)-$ nucleic acid encoding a protein(Y) $-T$; wherein:

~~the nucleic acid codes for a fusion protein comprising a peptide encoded by transport peptide linked via a peptide encoded by a first Z_1Z_2 to a protein encoded by said protein(Y) which is linked to T;~~

~~the peptide encoded by transport peptide improves the rate of secretion of the protein encoded by said protein(Y);~~

P_x comprises a promoter ~~sequence~~;

S_x comprises a nucleic acid ~~sequence~~ encoding a signal or leader ~~sequence~~;

B_n is a chemical bond;

Z is a codon for lysine or arginine;

R is an arginine codon;

transport peptide comprises ~~a nucleic acid sequence encoding~~ hirudin or lepirudin;

Z_1 is a codon for lysine or arginine;

Z_2 is a codon for lysine or arginine;

protein(Y)[~~-~~]~~comprises a nucleic acid sequence encoding~~ a protein, selected from the group consisting of mini-proinsulin and proinsulin, ~~that is~~ said protein produced and secreted by yeast; and

T is a terminator ~~sequence~~.

2-5. (Canceled)

6. (Original) A multicopy vector comprising the nucleic acid of claim 1.

7. (Original) A plasmid comprising the nucleic acid of claim 1.
8. (Original) A host cell comprising the nucleic acid of claim 1 as a part of the host cell chromosome, as a part of a mini-chromosome, or extra-chromosomally.
9. (Original) The host cell of claim 8, wherein the host cell is a yeast.
10. (Previously Presented) The host cell of claim 9, wherein the yeast is selected from *Saccharomyces cerevisiae*, *Kluyveromyces fragilis*, *Hansenula polymorpha*, and *Pichia pastoris*.
11. (Original) A host cell comprising the multicopy vector of claim 6.
12. (Original) A host cell comprising the plasmid of claim 7.
- 13-37. (Canceled)
38. (Currently Amended) The nucleic acid ~~sequence~~ according to claim 1 wherein the hirudin is selected from the group consisting of Val-Val-hirudin and Ile-Thr-hirudin.